

REMARKS

In accordance with the forgoing, claims 1-22 are pending and under consideration. The following remarks are respectfully submitted.

I. Rejections under 35 USC §102

A. Markowitz et al. (U.S. Patent No. 5,601,615)

1. Claims 1 and 7-11

Claims 1 and 7-11 stand rejected under 35 USC § 102(b), as being unpatentable over Markowitz et al. (U.S. Patent No. 5,601,615). However, Markowitz et al. does not disclose each and every element of claims 1 and 7-11, and Applicant respectfully requests that these claims be allowed.

Markowitz et al. discloses a pacemaker pulse generator that includes a method for deriving A-PACE and V-PACE stimulation energy thresholds. In the embodiment relied upon in the Office Action, Markowitz et al. discloses setting a “test escape interval” that is much smaller (for example, 50%) than the average measured A-A interval. (Markowitz et al., col. 20, lines 46-49). In contrast, the invention of claim 1 claims “an ACM test window exceeding a prevailing A-A escape interval and correlated to the slow intrinsic heart rate.” The test window disclosed in Markowitz et al. is much smaller than the test window of claim 1, and therefore Markowitz et al. does not disclose “an ACM test window exceeding a prevailing A-A escape interval and correlated to the slow intrinsic heart rate.”

Furthermore, Markowitz et al. does not disclosed “triggering the atrial pace pulse generator to deliver at least one test A-PACE pulse at the A-PACE pulse energy during the ACM test window” as claimed in claim 1. The test pulse disclosed in Markowitz et al. is triggered prior to the test window. (Markowitz et al, col. 20, lines 46-48).

Finally, Markowitz et al. does not disclose “declaring atrial capture . . . in the absence of an A-EVENT declared during the ACM test window” as claimed in claim 1. Markowitz et al. discloses timing the interval from the delivered test stimulus to the occurrence of the next sensed A-EVENT and comparing that time

to the NRW. (Markowitz et al., col. 20, lines 55-57). Atrial capture is declared if the A-EVENT is sensed after the test window. (Markowitz et al. col. 20, lines 62-63). Thus, Markowitz does not disclose declaring atrial capture “in the absence of an A-EVENT declared during the ACM test window” as claimed in claim 1 of the present invention.

Claims 7-11 are dependent claims that depend upon claim 1. Because the method claimed in claim 1 is not disclosed by Markowitz et al., claims 7-11 are similarly not disclosed by Markowitz et al.

Because Markowitz et al. does not disclose all of the elements of claims 1 and 7-11, claims 1 and 7-11 are patentable over Markowitz et al., and reconsideration and allowance of claims 1 and 7-11 is respectfully requested.

2. Claims 12-22

Claims 12-22 stand rejected under 35 USC § 102(b), as being unpatentable over Markowitz et al. (U.S. Patent No. 5,601,615). While the prior art discloses some of the elements of claims 12-22, such as an atrial pulse generator, atrial pace sense electrodes, and a digital controller/timer circuit, Markowitz et al. does not disclose each and every element of claims 12-22, and Applicant respectfully requests that these claims be allowed.

More specifically, in contrast to the invention claimed in claim 12, Markowitz et al. does not disclose ACM test window defining means for defining an ACM test window exceeding the A-A escape interval and correlated to the slow intrinsic heart rate. Nor Markowitz et al. disclose means responsive to the absence of an A-EVENT declared during the during the ACM test window for declaring atrial capture by the delivered test A-PACE pulse at the test A-PACE pulse energy as claimed in claim 12 of the present invention.

Claims 13-22 are dependent claims that depend upon claim 12. Because the method claimed in claim 12 is not disclosed by Markowitz et al., claims 13-22 are similarly not disclosed by Markowitz et al.

Because Markowitz et al. does not disclose all of the elements of claims 12-22, claims 12-22 are patentable over Markowitz et al., and reconsideration and allowance of claims 12-22 is respectfully requested.

B. Bornzin et al. (U.S. Patent No. 6,389,316)

Claims 1-11 stand rejected under 35 USC § 102(b), as being unpatentable over Bornzin et al. (U.S. Patent No. 6,389,316). However, Bornzin et al. does not disclose each and every element of claims 1-11, and Applicant respectfully requests that these claims be allowed.

Bornzin et al. discloses an implantable stimulation device including a system for detecting atrial capture and automatically setting an atrial stimulation pulse energy. As disclosed in Bornzin et al., the control system tests for the presence of an intrinsic atrial rate and measures the average P-P interval over a sufficient period of time to verify that the patient's atrial rhythm is stable. A detection window frequency and duration is calculated by the control system and is dependent upon the measured P-P interval. (Bornzin et al., col. 9, lines 41-49). The invention claimed in claim 1 of the present invention includes "defining an ACM test window exceeding a prevailing A-A escape interval and correlated to the slow intrinsic atrial heart rate". The size of the test window is not explicitly disclosed in Bornzin et al., except that it is dependent on the measured P-P interval. Thus, Bornzin et al. does not disclose an ACM test window exceeding a prevailing A-A escape interval, as claimed in claim 1.

Furthermore, Bornzin et al. does not disclose "triggering the atrial pace pulse generator means to deliver at least one test A-PACE pulse at the test A-PACE pulse energy during the ACM test window". Instead, the system disclosed in Bornzin et al. implements a capture verification assessment test with an A-pulse generated at a predetermined "prematurity" interval. This generated premature A-pulse is delivered within a cardiac cycle prior to the occurrence of the P-wave detection window. (Bornzin et al., col. 9, lines 50-54). Thus, Bornzin

et al. discloses generating a test pulse before the detection window, not during the detection window, as claimed in claim 1 of the present invention.

Finally, Bornzin et al. does not disclose “declaring ALOC . . . if an A-EVENT is declared during the time-out of an ACM test window” as claimed in claim 1 of the present invention. Instead, in Bornzin et al. if a P-wave is found in the detection window, then capture is not confirmed, the test pulse is increased, and the cycle is repeated until capture is found. (Bornzin et al. col. 10, lines 1-9). Thus, in Bornzin et al., an A-EVENT in the test window leads to repeating the test, rather than declaring a loss of capture. Therefore, Bornzin et al. does not disclose “declaring ALOC . . . if an A-EVENT is declared during the time-out of an ACM test window” as claimed in claim 1.

Claims 2-11 are dependent claims that depend upon claim 1. Because the method claimed in claim 1 is not disclosed by Bornzin et al., claims 7-11 are similarly not disclosed by Bornzin et al.

Because Bornzin et al. does not disclose all of the elements of claims 1-11, claims 1-11 are patentable over Bornzin et al., and reconsideration and allowance of claims 1-11 is respectfully requested.

II. Rejections under 35 USC §103

Claims 12-22 stand rejected under 35 USC § 103(a) as being unpatentable over Bornzin et al. (U.S. Patent No. 6,389,316) in view of Markowitz et al (U.S. Patent No. 5,601,615). While the prior art discloses some of the elements of claims 12-22, Bornzin et al. and Markowitz et al. do not disclose each and every element of claims 12-22, and Applicant respectfully requests that these claims be allowed.

More specifically, neither Bornzin et al. or Markowitz et al. disclose ACM test window defining means for defining an ACM test window exceeding the A-A escape interval and correlated to the slow intrinsic heart rate. Nor do Bornzin et al. and Markowitz et al. disclose means responsive to an A-EVENT declared during the time-out of the ACM test window for declaring ALOC by the delivered

A-PACE pulse at the test A-PACE pulse energy as claimed in claim 12. Similarly, Bornzin et al. and Markowitz et al. do not disclose means responsive to the absence of an A-EVENT declared during the during the ACM test window for declaring atrial capture by the delivered test A-PACE pulse at the test A-PACE pulse energy as claimed in claim 12 of the present invention.

Claims 13-22 are dependent claims that depend upon claim 12. Because the method claimed in claim 12 is not disclosed by Bornzin et al. and Markowitz et al., claims 13-22 are similarly not disclosed by Bornzin et al. and Markowitz et al.

Because Bornzin et al. and Markowitz et al. do not disclose all of the elements of claims 12-22, claims 12-22 are patentable over Bornzin et al. and Markowitz et al., and reconsideration and allowance of claims 12-22 is respectfully requested.

III. Conclusion

Finally, if there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned attorney to attend to these matters.

Respectfully submitted,

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